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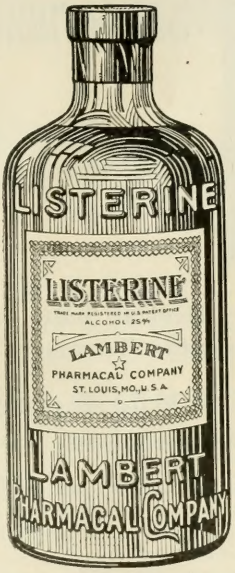

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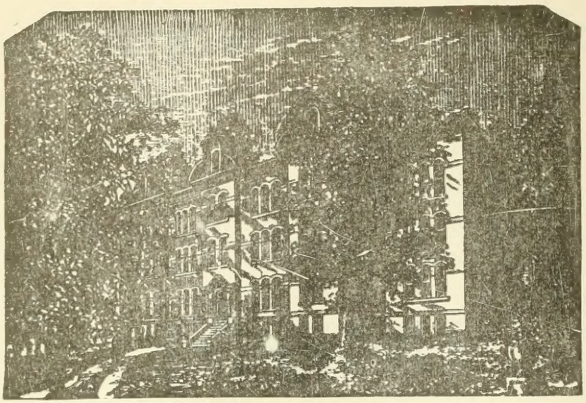

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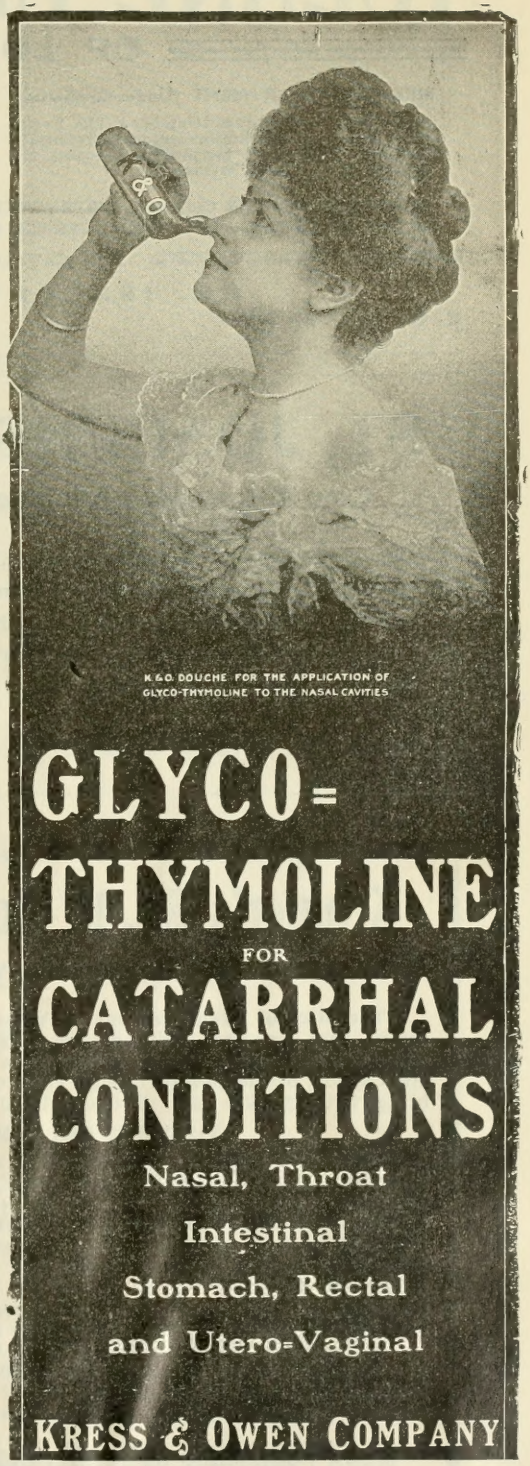

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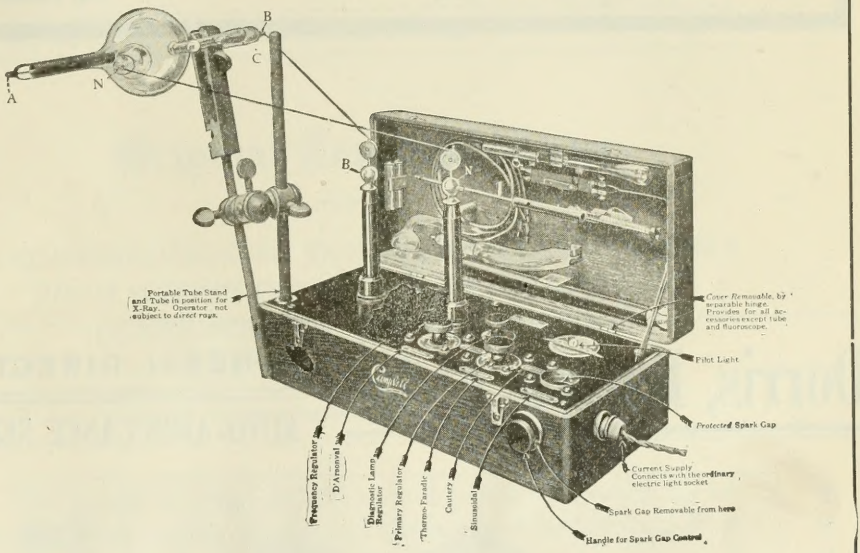

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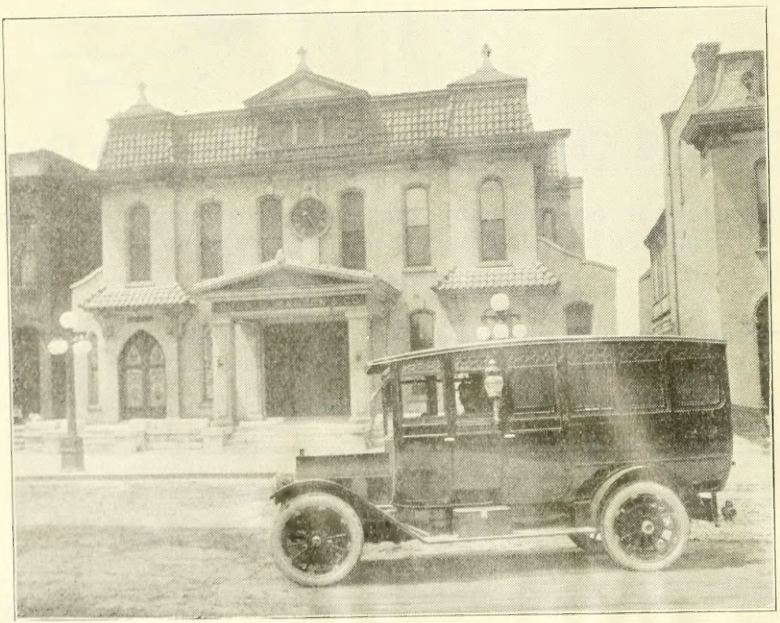

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NASHVILLE JOURNAL
—OF—
MEDICINE AND SURGERY

CHARLES S. BRIGGS, A. M., M. D., Editor
W. T. BRIGGS, M.D., Associate Editor.

VOL. CIX. FEBRUARY, 1915. No. 2

Original Communications

A CONTRIBUTION TO THE STUDY OF JOINT-BODIES FROM WITHIN PRESENT IN ARTICULATIONS, OTHERWISE APPARENTLY NORMAL.

BY AIME PAUL HEINECK, M.D., CHICAGO, ILL.

(An analytical review of all cases of joint-bodies originally reported in the English, French and German medical literature from 1890 to 1913 iniclusive.)

Our knowledge of the etiology, pathological anatomy, symptomatology, and of the various methods of treatment of joint-bodies is as yet incomplete and, therefore, calls for much further study.

The articular bodies which we herein discuss were unassociated with joint-lesions other than those determined by the presence of the joint-body or by the violence responsible for its existence. To avoid misstatements and to have accurate data as substructure of our conclusions, we only analyzed cases in which the diagnosis of joint-body was verified at the operating, dissecting or post-mortem table.

In formulating our conclusions, we excluded from consideration:

1. Cases reported with insufficient data or with only unimportant details.

2. Supposed or actual cases of fragmented, displaced or detached semilunar cartilage.

3. Supposed cases of joint-body, proven at time of operation to be extra-articular bodies.

4. Cases of extra-articular foreign bodies of intra-articular origin.

5. Cases of foreign body lodged in joint-capsule diverticula communicating, or not, with the general synovial cavity.

6. Cases of a nature so distinct from that of the joint-bodies under consideration that their inclusion would serve no useful purpose, would needlessly confuse the reader (Pendulous chondro-sarcomata).

7. Cases in which a preëxisting or co-existing disease of the articulation harboring the joint-body might be considered a contributory etiological factor (gonorrheal, suppurative arthritis).

8. Cases of mono- or poly-articular arthritis deformans.

We attempt to determine some facts relative to joint-bodies originating within the organism:

a. What is their incidence—

1. As to age?

2. As to sex?

3. As to articulation involved?

4. As to association with preëxisting, or co-existing, congenital or acquired, anomalies of the affected articulation?

b. Their etiology, nature and pathological anatomy.

c. Their symptomatology.

d. Their differential diagnosis.

e. Their treatment: Operative or non-operative. If operative, should one resort to local or general anesthesia? To joint-lavage? To joint-drainage? To immediate closure of the articulation? To immobilization? What is to be the nature of the post-operative treatment?

f. Results of operative treatment.

g. Conclusions.

INCIDENCE AS TO AGE.

The reader will keep in mind that the age given in case reports is not that at which the joint-body first became manifest, but is the age of the patient at time of operative relief.

The two youngest patients operated for joint-bodies originating within the organisms were nine and twelve years old, respectively. The knee was the articulation involved in both cases. The oldest patients were sixty-four and sixty-five years of age, respectively. The other cases in which the age is stated admit of the following tabulation:

From 14-19 years.....45 patients
From 20-29 years.....97 patients
From 30-39 years.....41 patients
From 40-49 years.....34 patients
From 50-60 years.....10 patients

Forty-one patients were subjected to operation for removal of elbow joint-bodies. Twenty-six of them were under 21 years of age.

INCIDENCE AS TO SEX.

Thirty-three of the patients were females, and the remaining 262 were males.

The relative freedom of the female sex from this pathological condition applies to all articulations. Out of 245 patients operated upon for knee joint-bodies, twenty-six are said to have been females. One female-patient was operated for a joint-mouse in right hip.

Women, owing to occupation, mode of life, etc., are less exposed to traumatic influences than men, and, therefore, pathologic conditions due to external violence are far less frequent in females than in males.

INCIDENCE AS TO ARTICULATION INVOLVED.

The condition may be mono-articular, poly-articular, or bilateral. Dissimilar joints may be involved in the same individual.

The unequal distribution as regards articulation involved is well recognized. In some articulations, joint-mice are pathological curiosities. Thus, Marestin found in the right piso-pyramidal

joint of a female dissecting-room subject, a smooth, ovoid, bean-sized osseous, pendunculated body.

The joint-incidence in the other cases is as follows:

UPPER EXTREMITY.

Metacarpo-phalangeal joint of thumb	1
Right	1
Radio-carpal joint	2
Right	1
Left	1
Shoulder joint	1
Left	1
Elbow joint	41
Side not mentioned	1
Right	30
Left	10

LOWER EXTREMITY.

Second meta-tarso-phalangeal joint	1
Ankle joint	4
Side not mentioned	1
Right	2
Left	1
Hip joint	3
Right	2
Left	1
Knee joint	250
Side not mentioned	42
Bilateral	8
Right	99
Left	101

ASSOCIATION WITH PRE-EXISTING OR CO-EXISTING, CONGENITAL OR ACQUIRED, ANOMALIES OF THE ARTICULATION WHICH HARBORS THE JOINT-BODY OR BODIES.

Primary joint-bodies occur in articulations otherwise normal, occur in articulations, the seat of other pathologic processes. In

the latter condition, there will be present a double disability: that determined by the presence of the joint-body and that dependent upon associated conditions. They have been found in connection with joint-bodies from without, with extra-articular foreign bodies, with dislocations, with ruptured ligaments, with fractured articular surfaces, etc.

ETIOLOGY.

In the causation of joint-bodies, external violence, either of a direct nature, such as that attending bumps, blows, falls, etc., or of an indirect nature, such as forcible muscular or ligamentous contractions, energetic torsions, efforts, sprains, etc., appears to be the main etiological factor. Indirect injuries are commonly due to movements productive of abnormal pressure or great traction on osseous or cartilaginous bone ends.

Patients often do not give a history of an injury sufficiently serious to have impressed itself upon their memory. Nevertheless, in two hundred and eighteen cases, a distinct and definite history of trauma is recorded.

In the elbow cases, it is stated:

In twenty-seven cases of elbow joint-body, the causative violence was:

A sprain of upper extremity	1 case
A fall upon outstretched hand	2 cases
A dislocation of elbow	2 cases
Throwing of a stone, of snowballs	2 cases
Fall upon elbow	8 cases
An elbow injury	12 cases

Among forms of violence productive of knee joint-bodies, we find the following:

Jumping	8 cases
Blow upon knee	10 cases
Sprained knee	16 cases
Injury to knee	46 cases
Fall upon knee	56 cases

In a few cases, a history of more than one injury is obtained. In such cases one, at times, finds it difficult to determine which of the two traumatisms is the causative one. In other cases, the first violence partly detaches the joint-body, the second one completely frees it from its base. A partly detached joint-body may remain in that state for a long period.

It has been amply demonstrated that trauma, slight or severe, may break off chips of articular cartilage and underlying bone without inflicting necessarily serious injury upon other portions of the joint. Slight force, attempting to avoid a fall, motion carried beyond normal limits, etc., may be the determining factor. The femoral condyles are the most frequent site of origin of traumatic knee joint-bodies.

As regards the etiology of joint-bodies, the following facts are demonstrated:

(a) One or more osseous, cartilaginous or osteo-cartilaginous fragments may be forcibly detached into the knee-joint, from the femoral condyles, tibial tuberculosis or patella; may be forcibly detached from any articular surface into the joint cavity, in the formation of which that surface, in part, enters.

(b) Organization of blood-clot and resulting formation of a fibrous mass acting as a joint-body is a possible sequel of articular hemorrhage.

(c) Lipomata originating in the subsynovial fatty connective tissue may become pedunculated and hang into the joint cavity.

(d) Exceptionally, the joint-body is a free or pedunculated fibroma, enchondroma, osteoma, or ecchondrosis. Purely cartilaginous joint-bodies are not common.

(e) As a result of injury, a portion of synovial membrane and underlying fatty connective tissue undergoes thickening and induration. Should this portion project into the articulation, it will be nipped repeatedly during joint-movements.

(f) In its normal state, the synovial membrane fringes may contain nodules of cartilage. Morbid conditions, as sprains, irritation, etc., act as a stimulus to these cartilage cells, causing them to subdivide, multiply and give rise to growths projecting into

the joint cavity; if these growths are snipped off by the joint-movements, loose joint-bodies result.

In the greater number of cases only one joint-body is present, in some, two are present; in some, three; in some, four; in some, five; in some, six; in others, eight; in others, ten.

The joint-body or bodies may be free, pedicled, or only partly detached. The joint-body may be adherent to the synovial membrane, the articular capsule or the bone.

(a) The joint-bodies were bound down by adhesions in nineteen cases.

(b) They were pedicled in twenty-six cases.

(c) They were free in eighty-six cases.

Joint-bodies vary in size, shape and surface characteristics. They may be ovoid, flat, oblong, spheroidal, pyriform, biconcave, biconvex, concave-convex, flattened, reniform, etc. They are pea-sized, lima-bean-sized, olive-sized, pigeon-egg sized, large chestnut sized, hen's-egg sized, etc.

The detached body either remains free, or becomes adherent to bone, articular cartilage or synovial membrane by an osseous, fibro-cartilaginous or purely fibrous bond of union.

The cases of joint-bodies which we studied may be classified, according to structural characteristics, as follows:

(a) Fibrous in structure ..... 11 cases
(b) Subserous fat lumps or subserous fat swellings ..... 6 cases
(c) Lipoma, pedicled or non-pedicled ..... 12 cases
(d) Osteoma ..... 1 case
(e) Enchondrosis ..... 1 case
(f) Osseous in structure ..... 15 cases
(g) Cartilaginous in structure ..... 103 cases
(h) Osteo-cartilaginous in structure ..... 123 cases

The large number of osteo-cartilaginous bodies is due to the fact that, in by far the larger number of cases, a piece of underlying bone is broken off with the cartilage, the line of cleavage being in the bone and not between the bone and cartilage.

(i) Nature of body not manifest ..... 32 cases

Complete examination of the entire articular cartilage is rarely possible; nevertheless, in many cases, one sees, during the course of the operation, the gap left by the detached joint-body. In knee cases, this defect is commonly situated on the outer surface of the internal femoral condyle in front of and close to the seat of insertion of the posterior crucial ligament.

SYMPTOMATOLOGY.

Two sets of symptoms call for consideration: First, those referable to the injury sustained by the joint as a whole at the time of the partial or complete detachment of the joint-body; second, those directly dependent upon the joint-body itself. In many cases, the subjective and objective symptoms are so distinct that the condition is easy of recognition. In other cases, the symptoms are either inconstant, mild or difficult of interpretation. Partly detached joint-bodies may persist for years as such, causing at long intervals more or less joint-irritation. Symptoms may be entirely lacking. Joint-locking may be the first symptom.

The main signs and symptoms of this condition are the following: Pain and tenderness, joint-effusion, joint-disability, crepitus, joint-locking, direct palpation of joint-body and X-ray evidence of joint-body existence.

Pain and tenderness are present in a large number of cases and may or may not be associated with other symptoms. They may be constant, intermittent or present only on attempted motion. They vary in degree, being in some cases merely a sensation of discomfort, or rheumatic in nature.

Joint-effusion: The synovial membrane is fretted by the presence of the joint-body and from this and from the initial trauma an effusion results (hemorrhagic—rarely—sero-hemorrhagic or serous). The effusion contributes, directly and indirectly, to impairment of joint-function. When massive and of long duration, it overdistends the joint-ligaments, and there results a pathological laxity of these structures which allows abnormal joint-movements (lateral movements in knee), impairs joint-stability and predisposes to luxation.

Joint disability: Joint-bodies are mechanical obstacles to movement, which may or may not produce great pain. Joint-disability is reported as marked impairment of function in ninety-three cases, as joint-weakness, in thirty-four cases, and as limitation of motion, in fifty-one cases.

Crepitus: Crepitus is a sensation and a sound; one feels and hears crepitus. In eighty-seven of the studied cases it is said to have been distinctly elicited. In all cases in which the authors report the presence of crepitus, the joint-body or bodies present were cartilaginous, osseous or osteo-cartilaginous in nature.

Joint-locking: Sudden attacks of acute, severe, excruciating pain associated with joint-locking, constitute one of the most pronounced symptoms of this condition. It occurs irrespective of the nature of the joint-body. The pain is so severe that not infrequently the patient is nauseated or faints. In the knee, joint-locking usually manifests itself as follows: While walking, patient has a very sudden, acute pain; he is compelled to stop, to sit down, the joint-movement is not completed, the joint is locked, usually in the partly extended position of the articulation. Often the patient knows where the body is impacted.

Direct palpation of joint-body: Should the clinician, in examining the affected articulation, palpate one or more joint-bodies, the diagnosis is clinched. Palpation informs the surgeon as to size, number, surface characteristics and degree of mobility of joint-mice. In 175 cases, one or more joint-bodies were palpable before operation.

In the elbow, the joint-body may be felt between the ulna and radius or between the radius and humerus or ulna and humerus.

Inability to palpate a joint-body does not exclude its existence.

A palpable joint-body may be immovable, slightly movable or very movable. It may be movable in all directions or only in one direction. A movable body may lose its mobility and later recover it.

One of the most valuable agents for the diagnosis of joint-bodies is roentgenography. Its value, according to our experience, is dependent to a great degree upon the ability of the radiographist to take and interpret negatives. The X-ray examination should include both an antero-posterior and a lateral view.

Joint-bodies from within, containing no calcific deposits or no osseous foci, will not cast a shadow upon the X-ray plate.

Differential diagnosis: In the differential diagnosis of this condition the difficulties encountered are due to various reasons:

(a) The causative violence may not have been sufficiently severe to leave a lasting impression upon the patient's memory.

(b) The condition may not come under the surgeon's observation in the early stage; therefore, one, at times, is in doubt as to whether an existent joint-body is primary in nature or secondary to a preëxisting or co-existing joint-affection.

(c) In the absence of an exploratory incision, the interior of a joint can not be inspected.

(d) Radiography may fail to make the case clear.

With few exceptions, the mistakes made in reference to the diagnosing of this condition, are avoidable. Joint-bodies located in deep-seated joints (hip, etc.), are the ones which puzzle the clinician. As to the symptom joint-effusion, we should bear in mind that a hydrops which resists appropriate treatment is not a disease sui generis. A joint-effusion calls for interpretation. Is it primary? Is it secondary? If secondary, secondary to what? To the presence of a joint-body? The palpatory findings are all important. The detection of a palpable joint-body, movable or immovable, makes the diagnosis self-evident. Joint-locking occurs in only one other common condition: Partial or complete detachment of one or the other, almost always the internal, semi-lunar cartilage. In the latter condition, the pain is most marked over the inter-articular line. In the differential diagnosis between a joint-body and a torn or detached semi-lunar cartilage, Roentgenography is an invaluable aid. It helps to diagnose the presence, number and location of joint-bodies. The semi-lunar cartilages consist of fibrous tissue arranged transversely and longitudinally, with a covering above and below of white fibrous cartilage. As they contain neither calcific nor ossific deposits, they are not opaque to the X-rays, and when torn or displaced cartilages give no findings on the X-ray plate. Osseous and osteo-cartilaginous joint-bodies appear as shadows on the X-ray plate.

A partly or completely detached semilunar cartilage calls for an arthrotomy as a preliminary step to its proper fixation or removal. All primary, free or pedicled, joint-bodies call for an arthrotomy as a preliminary step to their operative removal. Since both conditions call for opening of the synovial cavity, failure to differentiate one from the other, is neither a disastrous, not even a very significant mistake.

Treatment: In all cases of joint-body herein considered, the involved articulation was opened. In almost all the cases, one joint-body was removed; in the remaining cases, two or more were extracted.

For the operative removal of joint-bodies, we subject, in the absence of contraindications, our patients to general surgical anesthesia, employing either nitrous oxide-oxygen or sulphuric ether anesthesia, initiating the latter by nitrous oxide gas. General anesthesia secures complete abolition of consciousness, complete muscular relaxation and more ample protection against pain.

For the removal of joint-mice, select an incision giving easy access to the joint-body or bodies present and inflicting a minimal amount of trauma upon the peri-articular structures. The position of the incision is largely determined by the location of the body or bodies to be removed. It is generally longitudinal. Joint may be opened directly over mouse. For the removal of knee joint-bodies, some operators make an incision to the inner side of the patella, some to the outer side.

We advise that articulations be opened by longitudinal incisions, incisions parallel to the long axis of the limb, and in suitable cases, made directly over the joint-body itself. In the knee, make your incision, if not directly over the joint-body itself, to the inner or to the outer side of the patella. On the inner side of the knee are present the thick muscular fibres of the vastus internus. If adapted to the case at hand, an incision external to and above the patella, parallel with the fibres of insertion of the vastus externus is the incision of election.

There is one exception to this rule. A joint-body in the posterior part of the articulation can not, owing to the narrow communication between the anterior and posterior portions of

the capsule, commonly be removed by means of an anterior incision, unless one cuts the lateral ligaments. This is to be avoided. In such cases, place your patient during the operative intervention in the ventral position and use a posterior incision. The length of the incision various with the articulation and with the number and nature of the joint-body or bodies to be removed.

Joint-lavage: Healthy joints do not call for irrigation. All irritation of joint-endothelium must be avoided. Irrigation of the peritoneal cavity as a prophylactic to peritonitis has been abandoned. Irrigation of the pleural cavity in the treatment of empyema is meddlesome; it has no curative value. Joint-irrigation is no preventive of arthritis. It water-logs the tissues; it lowers tissue resistance; it serves no useful purpose; it delays recovery. We advise that it be not practiced. We do not irrigate clean operative wounds. Why irrigates normal articulation?

Joint-drainage: Joint-drainage frequently results in partial or complete ankylosis. A non-infected joint does not call for drainage.

Immediate closure of articulation: Immediately after the removal of joint-mice, the joint-capsule and the divided overlying peri-articular tissues should be reunited. The synovial membrane and capsule are closed with catgut and the overlying tissues with removable non-absorbable suture material.

Immobilization and post-operative treatment: In cases under consideration, it is desirable though not essential, that the operated joint be immobilized and that its articular surfaces be pulled apart. Secure fixation of the limb by the application of an anterior (rarely) posterior (generally) plaster-of-Paris splint moulded to the extremity. The splint should be of sufficient length to prevent all motion in the operated joint. To immobilize the knee-joint, the splint should extend from about two inches above the malleoli to within two inches of the perineum. By making extension on the distal segment of the limb, one can secure the desirable separation of the articular surfaces. Thus, the desired separation of the articular surfaces of the knee will be obtained by making moderate extension of the leg.

Results: All the patients recovered from the operation.

In analyzing the results, we first note the important fact that there were no operative deaths. The case-reports show that in a large majority of cases, non-operative treatment was tried and was found inappropriate, valueless, harmful. In the treatment of primary joint-bodies, it is generally recognized that non-operative measures are not curative. They prolong the patients' local suffering and disability; they, indirectly, lead to, or aggravate existing articular changes. Repeated attacks of joint-locking usually lead to permanent hydrarthrosis. Chronic joint-effusions can disturb to an irremediable degree the anatomical integrity of joint-structures.

In the large majority of cases, over 200 joint-body removal was followed by restoration of anatomical and functional integrity, expressed as follows: Complete functional recovery, function of joint normal, perfect anatomical and functional recovery, full recovery, etc.

With such results before us, no one should be allowed to go about suffering from loose or pedicled joint-bodies. Operation cures the condition and is followed in a large majority of cases, sooner or later, by complete anatomical and functional joint-integrity.

SUMMARY.

1. Primary joint-bodies occur in joints otherwise normal or presenting only such anatomical changes as are secondary to the presence of joint-body or bodies.

2. Primary joint-bodies occur in joints, the seat of congenital or acquired pathological states having no relation, either as cause or effect, to joint-mice.

3. Joint-bodies occur in the white and colored race, in both sexes and at all ages. They are met with maximal frequency in the male sex and during the third and fourth decades of life.

4. They are single or multiple, free or pedicled, and involve one or more similar or dissimilar joints. They may co-exist with extra-articular bodies and with various pathological peri- and extra-articular conditions.

5. Joint-bodies vary as to nature, shape, size, mobility, surface characteristics, and as to relation to articular bone-ends and syn-

ovial membrane. All undergo, sooner or later, degenerative anatomical changes. All determine, sooner or later, degenerative anatomical changes in one or more or all the structures constituting the joint.

6. Joint-bodies, organized blood-clots excluded, are composed of one or more of the constituent tissues of the joint. In structure, they are of a fibrous, lipomatous, osseous, cartilaginous, osteo-cartilaginous or mixed nature. The joint-bodies reported were chips or fragments of bone, of cartilage, of bone and cartilage, masses of thickened indurated connective tissue, organized blood-clots, fibromata, lipomata, chrondromata or osteomata.

7. Joint-bodies can co-exist with various articular lesions due to the same causative violence, or secondary either to joint-body irritation or to totally distinct and independent causes.

8. We know as to articulation involved that —

(a) No diarthrodial joint is immune.

(b) Excluding the joints of the upper extremity, the right and the left-sided joints are involved with about equal frequency.

(c) The knee and the elbow are the most frequent seats of joint-bodies; joint-bodies in other articulations are clinical and pathological rarities.

(d) Joint-bodies are found over five times as often in the knee as in all the other joints put together.

(e) All bilateral cases reported in the literature are knee cases.

9. Violence is the first and foremost etiological factor. It may be direct (bumps, blows, falls, etc.) or indirect (torsions, efforts, sprains, strains, etc.), slight, moderate or severe, and cause, in addition to the joint-body, other articular and peri-articular injuries. In exceptional instances, joint-bodies result from an inflammatory or a neoplastic process.

10. Cases of joint-bodies are not infrequently unrecognized, misdiagnosed and, as a result, subjected to injudicious and, at times, actually injurious treatment.

11. Joint-body symptoms are referable to three factors:

(a) The injury causative of the joint-body: The causative injury determines symptoms of acute articular and peri-articular

joint inflammations, symptoms analogous to those occasioned by strains, sprains, contusions, fissures or cartilaginous articular surface and other joint traumatisms.

(b) The joint-body proper. Joint-bodies proper determine one, more or all of the following symptoms: Joint-pain and tenderness, joint-swelling, joint-crepitus, joint-effusion, joint-disability, joint-locking. These symptoms are merely suggestive of the condition which we are discussing. If the joint-body be palpated, the diagnosis is absolute. If the existence of the joint-body be demonstrated by the floruscope or skiagram, the diagnosis is manifest.

(c) The secondary joint-changes induced by the presence of the presence of the joint-body cause symptoms varying from slight to complete joint-crippling. Repeated attacks of joint-locking and recurrent hydrarthrosis are responsible to a large degree for the deviations from the normal in contour, attitude and measurements of the affected articulation and also for the impairment of joint-function.

12. An attempt should always be made to diagnose not only the presence of joint-mice, but also their number, location, nature and other characteristics.

13. Roentgenography is an invaluable aid to diagnose the presence, number, location and many characteristics of joint-bodies. The X-ray examination should include an antero-posterior and a lateral view. Stereoscopic radiographs are to be preferred. Joint-bodies may exist though the X-ray plate be negative. If a joint-body from within be not the seat of calcific deposits or contain no osseous portion, it will cast no shadow upon the X-ray plate. X-ray findings have merely a confirmatory value.

14. The only relatively frequent condition which is difficult, at times, to differentiate from joint-bodies, is a partly or completely detached or ruptured semi-lunar cartilage. This condition also calls for an arthrotomy; therefore, the mistaking of a joint-body for a detached or ruptured semi-lunar cartilage or vice versa is not a significant diagnostic mistake.

15. Primary joint-bodies, irrespective of origin, location, nature, volume, number, mobility or surface characteristics inva-

riably impair, sooner or later, the anatomical and functional integrity of the articulation which harbors them.

16. Joint-bodies should invariably be removed by an open operation, using that incision which gives best access to the joint-body or bodies and which inflicts the minimal amount of permanent injury upon the peri-articular structures. Chronic synovial effusions are dangerous to the integrity of the joint and justify the very slight risks which attend modern aseptic methods.

17. Important operative points are: (a) General anesthesia. (b) Use of an Esmarch constrictor which is removed immediately after ablating the joint-body and before suturing the capsular wound. (c) Incision parallel to the long axis of the limb. (d) Location and length of incision determined by the site, size and number of the joint-bodies. (e) Removal of joint-bodies by aid of instruments. Intra-articular manipulation should be reduced to a minimum. (f) No joint-irrigation. (g) No joint-drainage. (h) Separate suture of capsular and cutaneous wounds.

18. The removal of joint-bodies is an operation of great simplicity, having no morbidity and no mortality. If an arthrotomy be performed with aseptic precautions, the risks to the articulation, immediate or remote, are nil.

19. The removal of joint-bodies is followed by more or less complete anatomical and functional recovery. In cases of long standing, the return of complete functional integrity is not always immediate.

20. No one should be allowed to go about suffering from primary, loose or pedicled joint-bodies. Operation cures the condition and in a large majority of cases leads to a complete return of anatomical integrity.

ANESTHESIA IN UROLOGY.

Translated by W. T. Briggs, M.D., Nashville, Tenn.

(Abstract of the report of Dr. Ravosini at the Urological Congress held in honor of Primarius Dr. Nicolich, *Trieste*—from Munchener Med. Wochenscrift.)

Since 1907 I have been performing all operations on the genito-urinary system with spinal anesthesia. I am very well satisfied with this method of anesthesia and though there were several unpleasant incidents, yet not a single fatal case, while four cases (two nephrectomies, one cystotomy and one prostatectomy) operated under chloroform died from the after effects of the chloroform anesthesia. For sometime I used stovain-adrenalin phiolen (Billon) with an addition of neutral strychnin sulphate according to method of Jonnesco; at present, however, I use only stovaine and adrenalin.

In adults the maximum dose for kidney operations was 5 cg.; in children 1½ cg.; in women and very debilitated male adults, 3 cg. In eight cases anesthesia did not develop. In twenty-two cases the anesthesia was incomplete. The accidents worthy of mention which I observed were the following:

In one case a complete paralysis of the urinary bladder which, however, completely disappeared two weeks after the operation; a condition of collapse after the operation in three very old patients; paralysis of the eye muscles in two cases, of an average duration of 2-4 weeks; right hemiplegia and aphasia which lasted twelve days and then completely disappeared. This occurred in a woman on whom a pyelotomy was performed.

My experience justified me in reporting the results with spinal anesthesia as very favorable. I have no fatal case to report and the bad after effects due to the stovain always completely disappeared.

For operations on the urinary bladder and prostate 3 cg. was in nearly every instance sufficient. I have used spinal anesthesia 523 times in the following operations: Kidney operations 208, prostate 56, bladder 116, perineal operations 12, external genitals 131. In all these operations the anesthesia was successful. In no case did the anesthesia cause an albuminuria. In several cases there was headache; vomiting hardly ever occurred.

Selected Articles

PRESENT-DAY CONCEPTION OF THE TREATMENT OF NEPHRITIS.

BY ARTHUR R. ELLIOTT, M.D., CHICAGO.

The title of this paper would appear to call for a discussion of "newer methods" of treatment in nephritis, or at least to include a comparison of strictly modern and improved therapy with the procedures employed by our less privileged forefathers. We do not appear to be able to indulge ourselves in any such gratifying manner. Despite the wealth of experimental data and clinical research that has accumulated during the past twenty years, very few "newer methods" of major importance that have received general scientific approval are at our command. We know now a little better how to diet our patients; a little better—perhaps we might say a good deal better—how to handle the cardiac problem, and knowing more about etiology of nephritis we find ourselves better equipped to exert a prophylactic influence.

The toxic origin of acute nephritis which was formerly a somewhat debated clinical realization is now a well-established scientific fact, and the predominant role played by the streptococcus is well understood.

The etiology of chronic nephritis is far less simple and easy of comprehension. The idea immediately presents itself whether it may not be that bacterial toxins also play a significant part in the production of the chronic nephropathies. A certain plausibility attaches to this idea in the case of the inflammatory type of chronic diffuse nephritis, because of similarities in pathologic changes and frequent direct association with antecedent acute nephritis. Whether on the other hand the chronic vascular degenerative nephropathies result from attenuated bacterial toxins operating over long periods of time is much more difficult to com-

prehend. Increasing emphasis is being placed on the role played by chronic focal and confined infection in the etiology of systemic disease. Indeed, this is the most fascinating and the most productive aspect of etiology investigation today. That it is the chief factor in the production of chronic arthritis, chronic endocarditis and myositis is now recognized, and that it may possess at least some importance in the causation of other obscure chronic lesions, such as chronic nephritis, chronic myocarditis, arterial hypertension, diabetes, seems not unlikely. Little definite light is as yet forthcoming in the case of chronic renal degeneration, but we may expect that investigation will soon decide the point as search for infective foci becomes more thorough.

Realizing the possible importance of focal infection, every case of sub-chronic or chronic nephritis should be carefully scrutinized to discover such a factor if possible. Among the most frequent sites of buried infection may be mentioned the teeth, nasopharynx, accessory nasal sinuses, tonsils, appendix, gall bladder, seminal vesicles, prostate, Fallopian tubes and renal pelvis, and each should be carefully examined. We should not arrest investigation until search has been thorough and complete, for it is possible that two or more separate foci exist, and if we are to secure full prophylaxis all must be obliterated. This successfully attended to, chances of progression of renal secondaries may be greatly reduced.

The frequency with which the signs of chronic nephritis and cardio-vascular degeneration are found to exist in individuals who have been syphilitic for years, and the possible etiologic relationship that may exist makes it desirable as a matter of precaution to investigate the Wassermann reaction in every patient with chronic nephritis when the etiology is doubtful. The discovery of nephritis prompts at once the resort to antisyphilitic remedies. Our hopes of improvement of the renal condition by this means are often doomed to disappointment. If the renal degeneration be not far advanced a considerable advantage over further progression may be gained, although advanced nephritis is more often harmed than helped. To push arsenic, mercury or iodides in advanced nephritis is to court disaster.

Before abandoning investigation into the etiology of any case of chronic nephritis the prevalence and insidious nature of chronic lead intoxication should not be lost sight of, and on the slightest suspicion that such a factor exists the urine should be tested for lead.

After all lines of investigation have proven unproductive, we are forced in most cases to fall back upon the mysterious world of metabolism, and to accept such explanations as gout, hyperalimentation, persistent nervous overstrain, intestinal autotoxis or other equally vague idea to account for the cardia-renal degeneration. Unfortunate in clinical medicine it is not always possible to work from definite cause to effect, but notwithstanding perhaps the most useful although not brilliant part of our therapy is carried on in ameliorating where we can not cure. In no class of cases will discriminating study of the individual case be so well rewarded as in chronic nephritis. Errors in diet and faulty methods of living, although unsatisfactory as first causes, are undoubtedly of immense importance in perpetuating and aggravating already existing renal lesions. Under careful management the average length of life in chronic nephritis is truly surprising. All of us know patients who have lived for many years with well established kidney changes. I am satisfied that there is no chronic disease in which more can be done for the good of the patient than in chronic nephritis.

The brilliant work of experimental pathologists in the production and study of nephritis in animals has unfortunately not yet helped us very far toward a better treatment of the disease in humans. These investigations, covering a period of ten years, have given us a clearer insight into the nature of edema, polyuria and anuria and the relation of renal disease to high blood pressure, but have contributed few facts that shed light on the problem of treatment. We know from past experience, however, that in chronic lesions we may expect as much from the accumulation of clinical data as from animal experimentation.

The present-day conception of diet therapy in nephritis differs in some important essentials from the practice of former times. This is due largely to the admirable teaching of von Noorden,

which have led to a more rational view of the food problem, and a better understanding of the regulation of fluid intake. In acute nephritis we proceed along physiologic lines, suiting the diet to the condition of the kidneys according to the principle of sparing the kidneys as laid down by von Noorden. In chronic nephritis many of the old qualitative restrictions have been done away with. Speaking frankly, the course and severity of primary chronic nephritis are much less influenced by subtle and artificial alterations in the diet than is commonly supposed. Sound as the principle of protein destruction may be, we are undoubtedly influenced far too much by routine in the hope of controlling protein excretion, which at best is not an accurate measure of the gravity of a case. Recent observations apparently show that in the vast majority of cases of chronic nephritis during the stage of cardiac compensation the total function of the kidneys is well up to normal as shown by the phthalein test and the ratio of non-protein nitrogen in the blood. This being the case, we need no longer feel that by some trifling miscalculation in the protein ration the fate of the nephritis patient will be jeopardized or that it is necessary to draw sharp lines any longer between the various forms of protein. Aided by periodic functional tests to check up the kidney condition and with our present knowledge of physiologic food requirements for good nutrition, the diet therapy of chronic nephritis may be adapted with accuracy and full realization that general nutrition and kidney conservation in so chronic a disease stand on a parity. I do not propose to discuss in detail the diet therapy of nephritis. That is ground made familiar by much discussion, and can yield us little that inspires to fresh interest. Two items that have been the focus of much investigation during recent years so that they constitute more or less new aspects of nephritis therapy may repay examination, i. e., fluid restriction and salt restriction. Both of these items have been elevated to the dignity of principles of practice. My experience would lead me to believe that they are not well understood by the majority of practitioners.

In contracted kidney and in certain stages of acute nephritis the restriction of fluid intake has become an important part of

rational treatment. The therapeutic problem in contracted kidney is really a cardiac one, the fate of the patient hanging almost solely on the maintenance of cardiac strength and an adequate blood pressure, so that the justification for fluid restriction rests here upon the same basis as in primary heart lesions, i. e., lessening of heart work. The fact is obvious that unrestricted drinking forces the transportation of large quantities of fluids through the blood stream, thus adding materially to the work of the heart. Moreover, during the stage of edema there is the risk of diffusion of water into the tissues thus adding to the dropsy. In experimental nephritis in animals produced by uranium nitrate it has been found that if at the same time considerable quantities of water were administered edema developed. The renal lesion without the artificial hydremia induced by water administration would but rarely lead to dropsy. It would appear from this that hydremia is at least one factor favoring edema. Regulation of fluid intake, therefore, becomes important as a prophylactic measure whenever the heart is to be spared, and also in all cases as soon as edema makes its appearance, whether the edema be cardiac or renal in origin. Various theoretical objections have been raised against the procedure. It is urged that fluid reduction increases the molecular concentration of the blood which may prove a harmful factor. Theoretically this is undoubtedly an objection, but in practice clinical experience has not found it of sufficient importance to prejudice the procedure.

The second point that has been raised is the bad effect low fluid intake might have on the excretion of urinary solids. Investigations on this point show that in primary contracted kidney at least the removal of urinary waste is not reduced even when the fluid allowance is restricted to 1250 c. c. a day.

Regarding the influence on the height of the blood pressure of free and of restricted fluid intake my clinical observations would lead me to believe that it is practically without influence either way. I have never been able to determine that unrestricted water drinking causes any material increase in blood pressure so long as the heart is competent nor on the other hand that limitation of fluids reduces blood pressure valves. Moreover, my observations

fail to show that there is any fixed correspondence between the fluctuations of blood pressure and the rise and fall of urine quantity. Contracted kidney being in the strictest clinical sense a cardiovascular problem should be treated on a low fluid basis. It is well to recommend that patients should take no more than 1500 c. c. daily, including in this total all fluids in the diet. This precaution is especially called for in cases showing much dyspnea, arhythmias, and other premonitions of cardiac breakdown. Even after cardiac failure has begun and edema is present, we see good results follow this practice.

In chronic diffuse nephritis with dropsy, and in contracted kidney with decided uremia the method of fluid control has proved futile. In the early stages of certain severe cases of acute nephritis with oliguria the amount of fluid should be reduced to the smallest possible quantity. In such cases, to use an expression employed by Herringham, "the kidney is struck dumb," and for a period is unable to excrete even water. With recovery of function as the severity of the inflammation subsides water may be progressively increased.

Since Widal first called attention to chloride retention and its relation to edema, a salt-poor diet has been much employed, and while the results are not always so brilliant as Widal predicted, they have proven amply sufficient to justify its use, and it has become a well established measure of diet therapy in nephritis. That chlorids are retained in edema, and that increase in chloride excretion coincides with disappearance of edema are now well established facts. Observations on experimentally induced nephritis in animals seem to indicate that chloride retention depends on the injury to the tubular structures of the kidney, whereas glomerular changes produce no such effect. This may give us some insight into the underlying anatomical changes in certain cases marked by persistent chlorid block, although no such general deductions should be drawn owing to the mixed type of nephritis encountered clinically.

In a general way the excretion of chlorides parallels that of nitrogen in acute nephritis, although exceptionally it may fall below nitrogen or even below water. These are cases usually

marked by dropsy. In chronic nephritis chlorides do not run parallel to urinary nitrogen. Although certain cases occur in which the chloride output is fully equal to the normal, more or less deviation is the rule.

Sub-acute exacerbations of chronic nephritis determine definite periods of chlorid retention marked frequently by more or less edema, subsequent compensatory hyper-excretion occurring as the dropsy subsides. In exceptional cases an inherent inability to excrete chlorids may exist. A resumption of chlorid function may frequently be brought about in such cases by withdrawal of salt from the diet.

This apparently simple and physiologic manner of combatting nephritis edema has naturally aroused much enthusiasm, and it is employed with a lack of discrimination that often brings it into discredit. Vogel urges that just as it is essential to determine the carbohydrates tolerance in diabetes as a preliminary to striking a proper starch ration, we should proceed to determine the salt and water capacity of each case of chronic nephritis in order to secure a sound basis for the regulation of the salt and water quotas of the diet. The technique of chlorid excretion tests is comparatively simple. Vogel (Arch. Int. Med., Vol. 7, No. 5) or Croftan (Jour. A. M. A., Feb. 17, 1912, p. 462) may be consulted.

Despite advances in our knowledge regarding the clinical pathology of nephritis, the fact remains that in any given case of chronic nephritis it is impossible to predict definitely by clinical study alone what course the disease will take in development. To furnish grounds for more exact prognosis and treatment various methods have been devised for estimating kidney function in an effort to determine at any point in the progress of a case what amount of renal function remains and is available. If one wishes to gather all possible clinical data he will not rest satisfied with a diagnosis of nephritis, but will proceed to determine for prognostic and therapeutic purposes the degree to which functional impairment has advanced.

This, the functional test, enables one, in some degree at least, to estimate. Time will not permit a discussion of the merits of the various procedures that have been advocated. Many of them

are less clinical than laboratory methods, and most of them have yet to make good their place in clinical practice. One method that bids fair to take its place among established procedures is the phthalein test of Rowntree and Geraghty. The harmlessness and simplicity of this test fit it for clinical use, and it is so rapid in end-reaction that results are quickly available. It is a valuable means of estimating total renal function. Rowntree and Geraghty have shown from careful studies in nephritis that the amount of phthalein excreted varies in rough ratio to the extent of renal damage. In fatal uremia only traces or perhaps none at all of the dye appear in the urine, while in mild and moderate grades of nephritis the amount recovered from the urine may be normal or nearly normal. Frothingham and Smillie in a series of 140 observations made on seventy-seven cases of chronic nephritis corroborate the claims of Rowntree and Geragthy. Frothingham and Smillie carried out along with the phtalein test in each case the estimation of the non-protein nitrogen in the blood. They found that the non-protein content varies inversely with the excretion of phthalein in the urine; in nephritis cumulative phenomena coinciding with renal function decline. A limited use of the phthalein test encourages me to believe that it may be used with advantage in the clinical study of these cases. In most instances its value will be purely negative, as the majority of cases under observation show good excretory capacity. Every now and then a low excretory index will appear. Pending repetition of the observation such a case should be handled conservatively, and if the low ratio should be a fixed characteristic, sparing the kidney and brisk elimination should be the principles of treatment. In pending or actual uremia excretory values are minimal, and possess the gravest significance. Every case of nephritis should have the test administered at intervals in order to keep track of the functional index, thereby affording help toward regulating diet and instituting eliminative measures. Moderate reductions are probably not of grave prognostic importance unless it can be determined by repeated tests that such is the established state of renal function. There is no fixed ratio between functional values by test and the height of blood pressure range.

In cardio-renal disease when the heart is failing and the kidneys are passively engorged a low phthalein output may be observed at first, rapidly rising as the cardiac action improves and venous engorgement subsides. An increase in the phthalein index in such a case may be the earliest evidence of restoration of compensation, and represents a favorable immediate prognosis. A low excretory capacity persisting after clinical evidence of cardiac improvement indicates a severe nephritis and an unfavorable prognosis.

It would appear from these findings that it is advisable to take into consideration the condition of heart in appraising the importance of lowered functional response in chronic nephritis. Indeed, we are compelled to take into consideration the condition of the heart no matter from what point we approach the problem of chronic nephritis. It might almost be said that the heart is the "problem" of contracted kidney. One illustration of the improvement in general understanding of the therapy of chronic nephritis is the increasing attention that is accorded the cardiac problem. As evidence of this may be cited the now almost general employment of the term "cardio-renal disease" in place of chronic interstitial nephritis. Inseparably connected with the cardiac problem is the element of high blood pressure to which it appears to be secondary. One of the aspects of chronic renal disease that has been considerably elucidated by experimentation is the pathogenesis of high blood pressure. By performing successive reductions of kidney substance in dogs Janeway has been able to demonstrate after the lapse of several weeks after the operations were completed a very material elevation of blood pressure and polyuria, thus definitely establishing a relationship between blood pressure and the amount of functioning kidney tissue. In this manner the fact long recognized clinically that high blood pressure, cardiac hypertrophy and polyuria are rendered necessary in chronic discomfort, if indeed nothing worse, will accue to the patient from the use of vaso-dilators.

Nitrites should be reserved for emergency use to combat angina, stenocardia, cardiac asthma, severe high tension headaches and other manifestations of high pressure that may supervene in

chronic nephritis. If dropsy, either renal or cardiac, exist nitrites should not be given, as under these circumstances they do only harm.

The treatment of high blood pressure is primary hygienic during the period of sustained compensation. The entire personal hygiene including diet should be so regulated as to eliminate and avoid all overstrain to heart and kidneys. The greatest emphasis should be placed on this principle of treatment and no pains spared to enforce obedience in detail.

The appearance of dropsy in contracted kidney almost invariably signifies the advent of cardiac failure. Soon or late in the course of every case that survives long enough cardiac edema develops. Because the case is primarily a renal one it does not follow that the dropsy is of renal origin. It is usually cardiac and has the characteristics of cardiac dropsy, and is not relieved by diuretics but requires cardiac supporting measures. Digitalis in the end becomes the staff upon which the chronic nephritis invalid must lean. I make the statement advisedly that digitalis is the most useful drug in high blood pressure of whatsoever origin. The reason for this is that after we have enforced the maximum of hygienic and dietetic precaution we can do no more for cardio-renal hypertension, but must wait until the heart begins to fail, and then we may prolong life for months or even years by the judicious use of digitalis and its congeners. The fact that the blood pressure is high need not deter us from using digitalis, since it acts just as well or even better with high blood pressure than it does with the failing pressure.—*The Lancet-Clinic.*

Extracts from Home and Foreign Journals.

SURGICAL

Foreign Bodies in the Appendix.

Dr. Royale H. Fowler (*Long. Isd. Med. Jour.*, Dec., 1914), concludes: (1) Foreign bodies are present in the appendix in about 2½ per cent of cases. (2) More than 52 per cent of all foreign bodies are represented by the common domestic pin. (3) The habit of infancy and childhood, i. e., placing everything in the mouth, is apparently responsible for about one-third of the pin cases. (4) Nurse maids, seamstresses, tailors and those whose occupations might predispose to this condition have rarely been victims of this form of appendicitis. (5) History of having swallowed the pin is rarely elicited. (6) The presence of a foreign body in the appendix is usually associated with inflammation. This may only be detected by microscopic examination. (7) Appendicitis associated with the presence of foreign bodies is more often chronic with recurrent attacks than acute. (8) In the majority of cases there is no reason to ascribe perforation of the appendix directly to the presence of the pin. (9) If histories are retaken in the light of operative findings, reconstruction will reveal fewer cases of foreign bodies in the appendix which have existed without symptoms referable to their presence.—*International Journal of Surgery.*

Prolapse of the Rectum.

Ach discusses the various factors involved in production of prolapse of the rectum, especially the tendency to paresis of the rectal walls common in lean men subject to obstinate constipation or who have passed through typhoid or dysentery. Women also are particularly liable to prolapse of the rectum during repeated pregnancies or the menopause when there is a general tendency to hernia. In children, chronic catarrhal bowel trouble induces a

predisposition by weakening the rectal walls, as also by the excessive straining at stool. Prolapse of the rectum is in reality first a hernia of the floor of the pelvis into the rectum. Treatment should be based on this pathogenesis. The simpler methods might be tried first, especially for children, massage, paraffin, or Thiersch's silver wire method. The various operative technics are described and compared, and Ach then illustrates a method he has applied in two cases with excellent outcome. The rectum is brought into normal shape by a strip taken from the fascia lata. The strip is 25 cm. long and 8 cm. wide and one end is slit about a third of the length of the strip. One of the slit ends is brought nearly around the rectum, to which it is sutured. The other end is sutured to the other side of the rectum and to the upper half of the vagina. The broad end of the strip is then drawn up as high as possible and fastened to Cooper's ligament.—*The Journal of the Am. Med. Assn.*

Large Hair Ball.

Dr. Matas exhibited a large hair ball (*Trychobezoar*) removed successfully at the Touro Infirmary in May, 1914, from the stomach of a young white woman, aged 19 years, who, as a child, had acquired the hair-eating habit while suffering from uncinariasis. The patient had been discharged from the hospital completely recovered after operation, on June 19, 1914. The mass weighed two pounds, three-quarter ounces, or approximately 967 grams. It was shaped like an inverted gourd and was moulded to the contour of the stomach. In the dry state it measured 18 inches, or 46 cms., in its longest diameter (along its convexity); 10¼ inches, or 26 cms., in its broadest circumference; 8¼ (or 20 cms.) around its middle portion, and 8⅛ inches, or 17 cms., in its narrowest circumference. The widest part filled the fundus of the stomach and its narrowest filled the pylorus and duodenum. It consisted of a mass of matted black hair which, when dry, was felted and gave the appearance of the fur of a wild animal. Mixed with the hair were particles of earth and vegetable foodstuffs which had gravitated to the center of the mass and were held in

the tangle by mucoid and other organic matter. The mass not not only filled the stomach in its entirety but was gripped tightly by its walls in many places. An incision 6¼ inches long along the anterior surface of the organ was required to permit its extraction. When extracted from the stomach it was covered with a thick, slimy coat of extreme foulness. The only space for the passage of food was a narrow interspace between the mass and the lesser curvature, where fluids and semi-solid foods could be forced from the cardia to the pylorus.

After discussing the history, statistics and clinical peculiarities of gastric and intestinal hair balls, and the results of surgical operations for their removal (which were eminently satisfactory), the speaker dwelt with special emphasis on the X-ray and the preoperative diagnosis of this rare condition. The great value of the fluoroscope and radiograph in the diagnosis was demonstrated by the exhibition of X-ray plates of this case, and the reports of the few cases in which X-ray studies had been made in very recent years for diagnostic purposes. By following the rules laid down by C. Thurston Holland, of Liverpool (Archives of the Rœntgen Rays, London and New York), July, 1913, and March, 1914, it was comparatively easy to make fluoroscopic diagnosis not only of a gastric tumor, but of an intragastric and detachable mass, which, if moulded to the shape of the stomach, would practically rule out any other condition but a hair ball.—*New Orleans Med. and Surg. Journal.*

Subrapubic Cystotomy.

Dr. T. Bratrud (*Jour.-Lanc.,* Dec., 1914), makes a plea for a more general use of this procedure in urinary obstruction from enlarged prostate or other cause when the patient is not a fit subject for radical operation. Cystotomy can usually be done under novocain anesthesia, one-quarter of one per cent being infiltrated in the line of incision. Installation of a one per cent solution of hydrochlorate of quinin and urea into the bladder, one-half hour before operation, is of material assistance in reducing pain. It is preferable to use water dilatation of the bladder, and to incise

this as high up extraperitoneally as possible. By following Rovsing's suggestion of applying one per cent silver nitrate to all the exposed tissues before opening the bladder infection of the space of Retzius is avoided. In cases of contracted and hypertrophied bladder, where satisfactory distention cannot be secured, the peritoneal fold must be lifted out by dissection, local anesthesia being supplemented by a small amount of ether. Drainage of the suprapubic opening is obtained with a Pezzer catheter connected with a rubber bag. In thirty-one cases of cystotomy the author had but one fatality in a man of sixty with an inoperable carcinoma of the prostate.—*International Journal of Surgery.*

MEDICAL

Signs of a Predisposition to Diabetes.

Bergell summarizes twenty-six cases with a positive response to the test he describes and sixteen others with a negative response, the antecedents or the course of the case in each confirming that the reaction occurs only in diabetics, even although the diabetes is so mild at this stage that its presence would not be suspected otherwise. The test is applied to the urine diluted to a constant specific gravity of 1.012; then 7 c.c. of a 15 per cent solution of sodium hydroxid is shaken up once with 20 c.c. of the urine. Then he adds 3 c. c. of a solution of copper sulphate (138.78 gm. $CuSo_4$ to the liter of water), and the whole vigorously shaken for ten seconds. It is then poured through a coarse filter; the first 2 c.c. are thrown away and the fluid that filters through in the next six minutes is collected in test-tubes of a certain size.

In the healthy the fluid is only very little discolored, but in the diabetic and in those who develop diabetes later there is a pronounced blue tint to the fluid. The reaction was positive in 80 per cent of the children of diabetics. He presents arguments to show that the reaction is connected with carbohydrate metabolism, and when this is deranged the reaction is positive. As the carbo-

hydrate metabolism returns to clinically normal, as in the case of diabetics under successful treatment, the reaction veers to negative. Even in the healthy, ingestion of 30 gm. grape sugar is followed by a transient positive reaction. He regards this test as of great prophylactic importance. When the reaction is pronounced, it permits the recognition of conditions premonitory of diabetes which demand treatment as for mild diabetes, and thus true diabetes later can be warded off. All inherited taint should call for special care in this respect, aiming to keep the reaction always negative or only feebly positive.—*Jour. Am. Med. Asso.*

The Harrison Law as Applied to Physicians.

An abstract of the Harrison bill and the regulations thereto appears in this issue, page ——. After three years' discussion, this bill has finally become a law, being signed December 17, 1914, and becoming effective March 1, 1915. Its object is to limit the sale of habit-forming drugs to legitimate purposes by requiring a record of all transactions in such drugs. Any physician who dispenses or prescribes any drug preparations containing opium or cocoa leaves or any of their derivatives is required to register with the collector of internal revenue of his district and to pay an annual registration fee of one dollar. This is prorated for the period from March 1, 1915, to July 1, 1915, at 34 cents. Physicians dispensing their own drugs must use the blank prescribed by the commissioner of internal revenue in ordering their supplies, and must keep a record of all habit-forming drugs dispensed to patients. Physicians prescribing drugs must sign their full name and give their registration number with the name and address of the patient on each prescription. All persons having such drugs in their possession March 1, 1915, must make an inventory of such drugs showing exactly the amount on hand at that time. This inventory, which must be verified by affidavit, is kept by the individual and is not filed with the commissioner. One important point of controversy between the physician and the druggist is settled by the ruling of the commissioner of internal revenue.

Only the original of prescriptions containing these drugs can be filled. The refilling of prescriptions is forbidden. Patients desiring an additional supply of such drugs must procure an original prescription from the physician. The law also requires a general registration of all physicians, dentists, druggists and veterinary surgeons, and only such persons will be allowed to dispense or prescribe these drugs. This law is a legislative experiment. Some time, many regulations and several amendments will probably be necessary before it can be reduced to smooth working order. In the meantime, physicians should at once take two precautions: They should make immediate application to the deputy commissioner of internal revenue of their district for registration, and they should make an inventory of all drugs and drug preparations in their possession containing opium or cocain, so that when the law goes into operation, March 1, each physician may have written evidence of the amount of these drugs in his possession at that time. Whether or not it will be possible to put so sweeping a measure into effective operation in so short a time remains to be seen; but physicians can give material assistance in the enforcement of the law, and can relieve themselves of any danger of embarrassment by taking two steps at once.—*The Journal of the American Medical Association.*

A Valuable Diagnostic and Prognostic Sign in Chorea of Children.

Chorea is readily recognized by the presence of spontaneous or induced irregular and spasmodic movements of the tongue, face and extremities. (Henry Heiman, *Archives of Diagnosis,* April, 1914.)

In order to produce the diagnostic and prognostic sign in chorea of children, the palm of the patient's left hand is placed upon the palmar surface of the observer's right hand. The thumb of the patient is embraced by the index and middle fingers of the physician, and the other four fingers firmly grasped by the remaining fingers of the examiner. The right hand is similarly grasped by the left hand of the physician. The attention of the

patient is then invited by asking him a simple question, for instance, his name, age, address, etc., at the same time having him look directly into the eyes of the examiner. If the patient has chorea, the twitchings of the hands will be distinctly augmented each time his attention is engaged by the mental concentration required to answer a question. The more the observer is able to disengage the patient's attention from the examination, the more surely will he be able to discern the finer muscular twitchings indicative of the early stage of chorea.

In patients who are steadily improving the twitchings of the muscles of the hand become gradually less and less marked, so that eventually not the slightest movements can be detected.

In order that this may serve to differentiate chorea from analogous conditions, that at all times it is an index to the severity of the disease and that its disappearance signifies in nearly every case a corresponding cessation of the other manifestations of chorea, it seems of considerable importance that this be demonstrated in the earliest stage of chorea.—*Med. Review of Reviews.*

Diseases of the Circulatory Organs in Warfare.

Grober, now at Metz, considers the effects of warfare on the presumably healthy circulation of the soldier. These begin notably among the older men during mobilization. The overexertion and hardships of warfare tend to fatigue the circulation and reveal the existence of "inferior" heart and blood vessels—in other words, cardiac weakness. The affected subjects may be quite unaware of their condition. The pulse is small, weak and slow, inferentially with very low blood pressure. Arhythmia was not noted. The cardiac area was amplified without lowering of apex beat. The impression made was that of a dilated left ventricle. Sudden movement after rest may cause murmurs. Heart morbidity in civil practice is not encountered in warfare save in rare instances. Typhoid fever occurring in troops, and, perhaps, dysentery, injure the myocardium. Damage to the heart by way of the nervous system is naturally expressed in various ways, as in civil practice. Psychic trauma caused an acceleration of pulse

up to 140 and profuse sweats. Arteriosclerosis is naturally to be expected after the war, and this is a predominant fear. The Germans, and especially the French, are seeking to prevent this condition by using prophylactics like potassium iodide. The author does not believe in this possibility. Treatment of weak circulation in troops in the military hospitals consists chiefly of personal hygiene, notably rest. The soldiers usually go back to the front after three weeks.—*Medical Record.*

The Use of Normal Horse Serum for the Prevention of Hemorrhage in Nose and Throat Operations.

It has been known for some time that normal horse serum will aid in controlling hemorrhage. It has principally been used post-operatively. Thiesen and Fromm (*Alb. Med. Ann.*, October, 1914), have conducted a series of experiments in which they have been using the horse serum prior to operation in those cases in which there exists a history of hemorrhage or hemophilic diathesis. The coagulation time of the blood was taken before and after injection and there was found to be an average decrease in coagulation time of 1.06 minutes. The use of the serum is comparatively safe as only one injection is necessary and the danger of anaphylaxis is comparatively nil.—*Medical Review of Reviews.*

The Use of Pituitary Extract in Obstetrical Practice.

Miller, writing in the *Pan-American Surgical and Medical Jour.* for August, 1914, mentions the use of pituitrin in post-partum hemorrhage. It is the ideal remedy in that one can get a result within six or seven minutes after its injection, and it will control the uterus better than any other remedy that has been offered. It practically takes the place of ergot, which we have been skeptical about for some time.

Another point the writer would mention is that after Cæsarian section it makes an ideal remedy to be injected as one removes

the child. If injected before the child is removed, one will get a tetanic contraction and may lose the child.

Another point which the writer thinks ought to be mentioned is the use of this drug in post-operative conditions for moving the bowels. Heretofore we have used enemas, purgatives, and we have had these cases vomit for days, and fill up with gases, but we may expect a bowel movement after its use in fifteen minutes. Its action is positive, and one can expect results. Recently the writer had occasion to use it in a case of gall-bladder work, and within twelve minutes after injection the patient had a large bowel movement and was quite comfortable.

It may have a place in typhoid fever, which the writer does not care to discuss at this time. He recommends it in any case in which the patient is annoyed by tympanites and is uncomfortable. —*Therapeutic Gazette.*

Don'ts for the Young Doctors.

If you are fortunate enough to have the friendship of an older doctor and he lets you come to his office and stay during his office hours—

Do not stay around all the time; give him a chance to attend his private affairs.

Do not look around in his waiting room to see who his patients are, as there are some who do not care to be seen.

Do not ask his patients questions about their condition, and tell them what to do; leave that for him, as they are his patients, not yours.

Do not make yourself officious around his office, inspecting his mail and his patient's register; that is his private affairs. If there is anything due you he will be gentleman enough to give it to you.

Do not go around the office whistling and singing, as it is very annoying to him, and his patients also.

Do not sit around in his office and sleep. Go to your own for that.

By following the above advice you will be more thought of, and your visits will be more appreciated.—*The Lancet Clinic.*

OBSTETRICAL

Extraperitoneal Caesarean Section.

G. Gellhorn points out that the classical Cæsarean section and its modifications are adapted only for cases in which there is no infection, in which the membranes are intact or recently ruptured, and in which previous examinations and attempts at delivery have been strictly avoided. In the so-called "unclean" cases the extraperitoneal operation originated by Thomas in 1870 and recently rehabilitated by Frank is the operation of choice. It is to make an incision into the lower uterine segment instead of the fundus, and to exclude the operative field from the rest of the peritoneal cavity. It has not fully fulfilled the hopes it excited, and patients already infected can not be saved by it. Brilliant results, however, are obtained in suspected cases, and even more so when the operation is employed in aseptic ones. The author gives the details of three cases, and describes the technique used. It is, strictly speaking, a transperitoneal method. The parietal peritoneum is first incised, then the visceral peritoneum is pushed off the lower uterine segment, and finally, by stretching the parietal peritoneum to the uterus, the free abdominal cavity is excluded, and the operation rendered extraperitoneal. In the classical Cæsarean section there are besides the scar and adhesions, copious bleeding during the operation, the escape of amniotic fluid and meconium into the peritoneal cavity, during the section, and the possible leakage of uterine fluid later on. In the extraperitoneal method the post-operative adhesions are not conceivable and the temporary protection of the abdominal cavity by suturing the parietal peritoneum to the uterus prevents the escape of fluids. After the operation the parietal peritoneum completely covers the field, and the contractions of the uterus cause the peritoneal sutures to disappear, leaving an unbroken peritoneal surface. There is only one condition in which the extraperitoneal method does not offer advantages over the others, and that is in placenta praevia. In such a case the incision through the lower uterine seg-

ment would open the enormous dilating blood sinuses, which would render orientation and proper check of the hemorrhage difficult.—*Medical Record.*

A Placenta in the Abdomen for a Long Time After Extra Uterine Pregnancy.

In January, 1910, a full-term macerated fœtus was removed from a patient and it was said that the placenta was removed also. Extra-uterine pregnancy had been diagnosed in the fourth month, but the patient had refused operation. In December, 1914, the patient came to the author. There was a large fistulous opening in the scar in the midline which was 10 cm. long. The hand could be inserted into the opening. A soft cauliflower-like tumor, the size of a child's head, could be palpated through the fistula. Because of the abundant hemorrhage the patient was operated on *in extremis.* The tumor was removed and was found, on macroscopic and microscopic examination, to consist of unchanged placental tissue. The patient was discharged cured. The author concludes from this case that in extra-uterine pregnancy the whole placenta should always be removed.—*The Post-Graduate.*

An Unusual Case of Vicarious Menstruation.

Hirschberg (*Zentralbl. f. Gynak.*, 1914, No. 26) reports a case in which regular menstrual periods were accompanied by a passage of blood from the breasts. From the age of 15 to 17 there was a watery discharge from the breasts at each menstrual epoch, which began a day or two before and continued for several days after the genital flow. After 17 this breast discharge was bloody. During three pregnancies the flow did not appear. She aborted twice, after each of which the flow returned as usual. After the third pregnancy, which went to term, the flow ceased and did not return. The doctor reports another case wherein the breast-bleeding occurred after a hysteropexy with castration.—*New Orleans Medical and Surgical Journal.*

Editorial

PUBLISHER'S NOTICE—The Journal is published in monthly numbers of 48 pages at $1.00 a year, to be always paid in advance.

All bills for advertisements to be paid quarterly, after the first insertion of the quarter.

Business communications, remittances by mail, either by money order, draft, or registered letter, should be addressed to the Business manager, C. S. Briggs, M. D. corner Summer and Union Streets, Nashville, Tenn.

All communications for the Journal, books for review, exchanges, etc., should be addressed to the Editor.

THE ANTI-NARCOTIC FEDERAL LAW.

The anti-narcotic act of Congress goes into effect March 1, therefore we advise our readers to get a copy of this law and familiarize themselves with its import in order to avoid future trouble.

Except insofar as it applies to the medical profession it seems to be a good law and if enforced will do much toward stopping the use of narcotics among drug habitues. In its application to the medical profession it is one more reflection on the judgment of practitioners, it is one more restriction added to those already existing which promise soon to put the profession in the power of state and national government to handle as they please. With state laws regulating the practice of medicine it seems that having conformed to these laws, the doctor would have a right to use his own judgment as to the amount of narcotics he uses in prescriptions and not have to go through a lot of red tape every time his dosage exceeds that prescribed by law. All the laws regulating the practice of medicine have done good but have at the same time made the profession an object of suspicion so that the layman loses that implicit confidence in his physician which helps tide him over some stages in his illness where will-power and hope count more than drugs.

The profession has done more than the state in elevating the standard of the profession; had there been a need to control the

prescribing of narcotics the profession would have been the first to see it.

This law goes to show that we need a National Board of Health in order that the profession may get its deserts and wield the power of which it is capable. Without such a Board the profession will always be handicapped and the people are the losers. Without the aid of the National Government and with but little aid from the states, in the last decade, the profession has done wonders in raising the standard of the profession. This shows that the welfare of the people stands foremost in the doctor's mind. Every improvement in sanitation for which the doctor fights and for which he is always criticised because people think there is some selfish motive behind it, takes some money out of the doctor's purse so soon as the improvement is realized.

Because doctors may be good or bad, the profession has tried to cut down the number of the bad. But because our state and federal representatives may be good or bad nothing has been done to regulate these offices. No educational standard upholds the standard of our law makers and many of the bills introduced into the state legislatures and in Congress bespeaks an ignorance which is often ridiculous.

Let us hope that the Federal Government will give us a National Board of Health before any more laws controlling the profession are passed and if states rights are going to be ignored—as this Harrison Act ignores them—then let us have a National Board of Medical Examiners instead of the separate State Boards of examiners. And since the medical profession has paved the way, let us hope our State and Federal governments will do some housecleaning themselves and make a few regulations as to who shall or shall not represent the people when it comes to the handling of their morals and money.

Wisconsin and Nebraska Fee-Splitting Laws.

A Bill to create Section Section 4431b of the statutes and to define and punish fee-splitting by physicians and surgeons.

The people of the State of Wisconsin, represented in Senate and Assembly do enact as follows:

Section 1. There is added to the statutes a new section to read: Section 4431b. 1. Any physician or surgeon who shall claim or demand and collect and receive any money or other thing of value as compensation for his professional services in treating or operating upon a patient who was induced or advised by another physician or surgeon to submit to such treatment or operation, and who shall have previously paid or delivered, or shall thereafter pay or deliver, any money or other consideration to such other physician or surgeon or his agent, as compensation for such inducement or advice, or as compensation for assistance in the case, shall be guilty of a criminal fraud and upon a conviction thereof shall be punished by a fine of not more than one hundred dollars or by imprisonment in the county jail not exceeding six months. Such conviction shall operate also as an annulment of the license held by the convicted person to practice as such physician or surgeon.

2. Any physician or surgeon, not a citizen of Wisconsin, who shall in any adjoining State treat or operate upon a citizen of Wisconsin, who shall have previously paid or delivered, or shall thereafter pay or deliver, any money or other thing of value to another physician or surgeon as compensation for inducing or advising such patient to submit to such treatment or operation, or as compensation for assistance in the case, is forbidden to practice medicine or surgery within this State or to participate in this State with other physicians or surgeons in consultations. Every violation of this subsection shall be a misdemeanor punishable by a fine or by imprisonment as prescribed in subsection one.

3. All prosecutions under this section shall be in the circuit court.

Sec. 2. This act takes effect when published.

DOCTORS DIVIDING FEES.

It shall be unlawful for any physician or surgeon to divide fees with, or to promise to pay a part of his fee to, or pay a commission to any physician or surgeon who calls him in consultation or

sends patients to him for treatment or operation. Any physician or surgeon who pays or receives any money prohibited by this section shall be punished by a fine of not more than one hundred dollars and be liable in a civil action to the patient for the full amount received. [Revised Statute of Nebraska, Section ——.] —*The Lancet-Clinic.*

Our thanks are due the Fellows Company for a brochure entitled "Some important Memoranda for the Busy Physician. It contains many items of practical interest for the practitioner and will prove of great help to everyone who can secure a copy. It is a multum in parvo compilation, succinctly and clearly showing the following: Twilight Sleep, Osler's Spots, Reaction and Reagents Signs, Solutions, Stains and Staining Methods and Tests. As a handbook of ready reference for the busy physician it should be invaluable. A copy can be obtained free of charge by applying to the Fellows Company, whose advertisement appears in every issue of the Journal.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE.
2 Jackson Place.

WASHINGTON, D. C., February 16, 1915.

The undersigned have been associated for some years in the execution of a trust to promote international peace and our duties have involved a continual survey of the efforts to that end throughout the world.

We wish to say to all friends of peace that the dreadful war now raging affords no just cause for discouragement, no discredit to past efforts, and no reason to doubt that still greater efforts in the future may be effective and useful.

The war itself is teaching the gospel of peace through a lesson so shocking and so terrible that the most indifferent can not fail to attend and understand it.

Not only have the destruction of life, the devastation and the suffering in the warring countries passed all experience, but the cessation of production, the closing of markets, the blocking of trade routes, the interruption of exchanges, have affected industry and caused ruin and poverty in all the peaceful countries of the world.

The universal interdependence of nations has been demonstrated and the truth forced upon every mind that the peace of all nations is the vital concern of every nation.

To cast our weak protest now among the tremendous forces that are urging on the great conflict would be futile; but the end of this war will come before long and then the great question will stand for answer:

Shall the lesson be forgotten; the sacrifice lost?

That question the belligerent nations only will have the power to answer; but everyone in the world will be entitled to be heard upon it, for it will be a question of civilization, the most momentous of our era.

It seems incredible that after this the stricken people will set their feet in the same old paths of policy and suspicion which must lead them again to the same result.

Finding expression through a great multitude of voices everywhere the general public opinion of mankind should influence the minds of the negotiators who settle the terms of peace and inspire them to a new departure in the establishment of justice as the rule of international relations.

While we must not be overconfident of our individual qualifications to point out the detailed methods through which the result may be accomplished, we may still advocate measures which seem practicable and appropriate to the purpose.

We can see that definite rules of national conduct should be agreed upon; that a court of competent jurisdiction should be established to judge of national conformity to those rules; and that new sanctions should be provided to compel respect for the judgments rendered.

Above all the motive and spirit of the new institutions should be clearly and fully, not the promotion of ambition or the exten-

sion of power, but the safeguarding of human rights and the perfection of individual liberty.

Toward this high end the courage and hope and conviction of the humblest citizen of the most distant land may contribute.

Joseph H. Choate,
Andrew D. White,
John W. Foster,
Elihu Root,
Luke E. Wright,
Charlemagne Tower,
Robert S. Woodward,
Austen G. Fox,
Jacob G. Schmidlapp,
Thomas Burke,
Robert S. Brookings,
Oscar S. Straus,
Samuel Mather,
James L. Slayden,
John Sharp Williams,
Charles L. Taylor,
Henry S. Pritchett,
William M. Howard,
Cleveland H. Dodge,
Robert A. Franks,
George W. Perkins,
Nicholas Murray Butler,
Andrew J. Montague,
Arthur William Foster,
James Brown Scott,

Obituary

Dr. S. W. Coombs.

We regret to announce the death at his home in Bowling Green, Ky., about November 18, 1914, of Dr. S. W. Combs, in about the 56th year of his life. Dr. Combs was a graduate from the medical department of Vanderbilt University and was known as one of the best students of his class. He engaged in active practice in his native town and was universally respected and esteemed. He was affable, attentive and upright in his dealings with his fellowman and his death will be deplored by the entire community. We append an extract from one of the local papers:

"The news of the death of Dr. Samuel W. Coombs came with a sudden shock to his many friends in the city and vicinity. Apparently in good health, he was suddenly taken off without warning.

"Dr. Coombs was still in the vigor of middle age, and had for many years been one of the city's prominent figures. Leading in his profession, he led an active life until a few years ago, when he retired from active practice, although up to the time of his death he was called into the homes of his friends by those who placed great confidence in him.

"Of a modest, retiring disposition, he was never self-assertive. He went about his affairs with diligence and with conscience.

"He will be missed among the large circle of friends in the city of his nativity."

Dr. James D. Bodine.

James M. Bodine, eighty-three, Louisville, Ky. Dr. Bodine was born at Fairfield, Ky., where he received his elementary training in a private school. Later he attended St. Joseph's College, Bardstown, and Hanover College, at Hanover, Ind. Coming to

Louisville in 1851, he entered the office of Dr. H. H. Bullitt as a medical student. He attended the Kentucky School of Medicine and was graduated in 1854. A short time later he went to Austin, Texas, where he practiced medicine until the fall of 1855. While on a visit to his parents in Louisville he met Miss Elizabeth Crow, daughter of Edward Crow, a merchant, and married her on Christmas day, 1855. As a result of his marriage, Dr. Bodine decided to remain in Louisville. Even in those days he had gained a reputation as an anatomist and he accepted appointment as demonstrator of anatomy at the Kentucky School of Medicine in 1856. He retained this position until 1857, when illness of his wife induced him to move to Leavenworth, Kansas. There he became the president of the first medical society in that section of the country. In 1862, he returned later and identified himself with the Medical Department, University of Louisville. For forty-four years he was dean of the medical department of the University of Louisville, and he bore the distinction of having his signature upon more doctors' diplomas than any other college head in the United States. At his death he was president emeritus of the university faculty. He served on the Louisville Board of Health, and was regarded as a leading teacher of anatomy throughout the nation. Dr. Bodine had few equals as a teacher of anatomy.—*The Lancet Clinic.*

Reviews and Book Notices

Proceedings of the Eighth Annual Meeting of the Association of Life Insurance Presidents. Held in the Hotel Astor, New York, N. Y., December 10 and 11, 1914.

This volume of transactions is interesting and instructive, presenting as it does a series of carefully prepared addresses and thorough discussions upon topics of vital importance to the general public and to physicians closely associated with this phase of business life. One paper on "Live a Little Longer" is deserving of especial notice as it would repay anyone so fortunate as to read it. The transactions in its makeup and contents is extremely commendable.

Physicians' Pocket Account Book and Practical Advice for Professional success. By J. J. Taylor, M.D. Published by The Medical Council Company, 42nd and Chestnut Sts., Philadelphia, Pa. Price $1.

The Taylor Physicians' Pocket Account Book. The tenth addition of this very useful account book has just been received. Having used the book ourselves we can conscientiously recommend it to those members of the profession who desire to keep an accurate record of their work and yet do not care to employ a bookkeeper on the one hand or to devote their own time to the onerous duty of keeping books. This little book answers every purpose for which it is intended, requires no more time to keep than one would spend on his visiting list and yet at the year's end there is a complete record of all the work done and collections made. Whether you are or are not liable under the Income Tax Law this little book will contain all the information relative to your collections the government's agent will require and will be worth more than a dollar to any doctor who uses it.—W. T. B.

Publisher's Department

Notwithstanding the large number of Hypophosphites on the market, it is quite difficult to obtain a uniform and reliable Syrup. "Robinson's" is a highly elegant preparation, and possesses an advantage over some others, in that it holds the various salts, including iron, quinine and strychnine, etc., in perfect solution, and is not liable to the formation of fungus growths. (See advertisement in this issue.)

Tongaline and Lithia Tablets are particularly indicated for certain diseases which are caused by deposits of urates in the joints and kidneys, and can be used with much benefit for many people who indulge in generous intemperate habits of living.

After the acute forms of malarial fever are checked by quinine, a slow form of fever sometimes persists not amenable to the quinine. In such cases Tongaline and Quinine Tablets will prove very efficacious.

Glyco-Thymoline in Tonsilitis.

A local remedy must fill two requirements. It must be a detergent antiseptic and produce a degree of permanency.

Glyco-Thymoline as a gargle, or used as an atomizer, produces excellent results. It rapidly relieves the dry, congested condition of the mucous membrane by its exosmotic action and its anodye effect is immediate and lasting.

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A STANDARD REMEDY in the treatment of Pulmonary Phthisis, Bronchitis, Scrofulous Taint, General Debility, etc. Stimulates Digestion, promotes Assimilation.

℞ Each fluidounce contains:

Hypophosphites Soda	- - - - 2	grains
" Lime	- - - 1⅛	"
" Iron	- - - - 1⅛	"
" Quinine	- - ¾	"
" Manganese	- 1½	"
" Strychnine	- 1-16	"

DOSE—One to four fluidrachms.

6 oz. Bottles, 50 Cents.
Pint Bottles, $1.00.

This preparation does not precipitate—retains all the salts in perfect solution.

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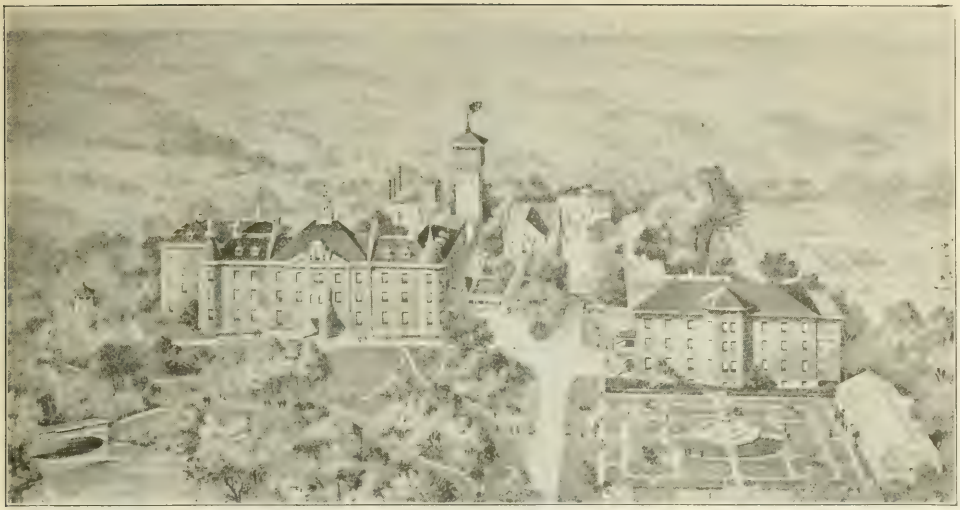

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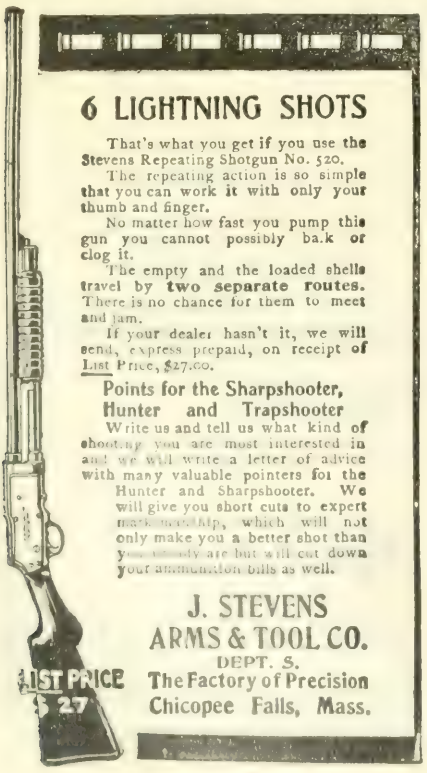
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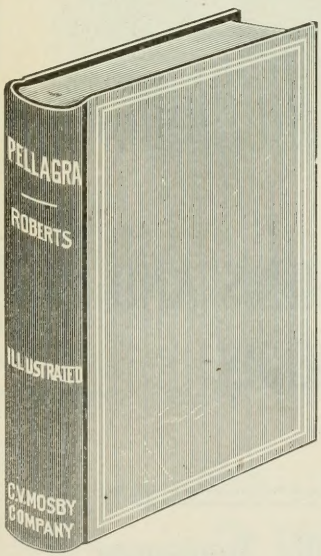

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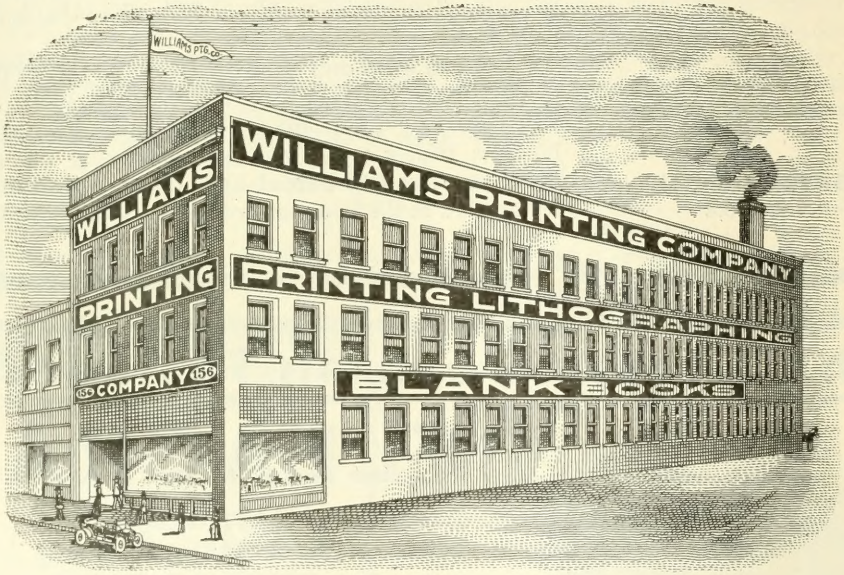

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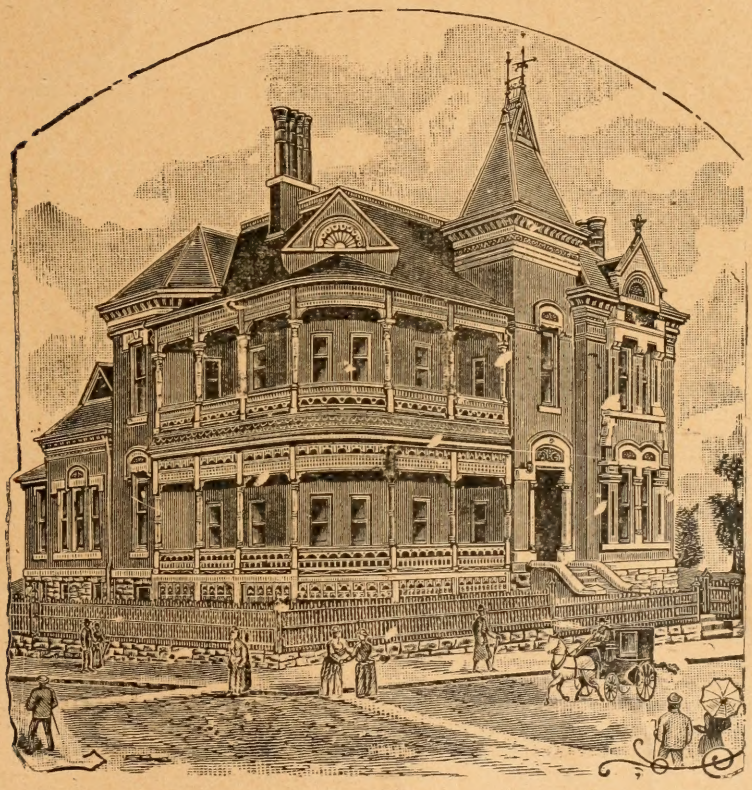

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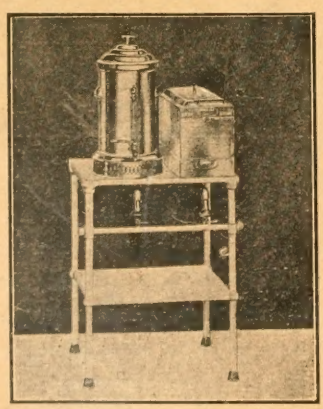

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